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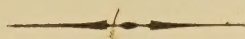
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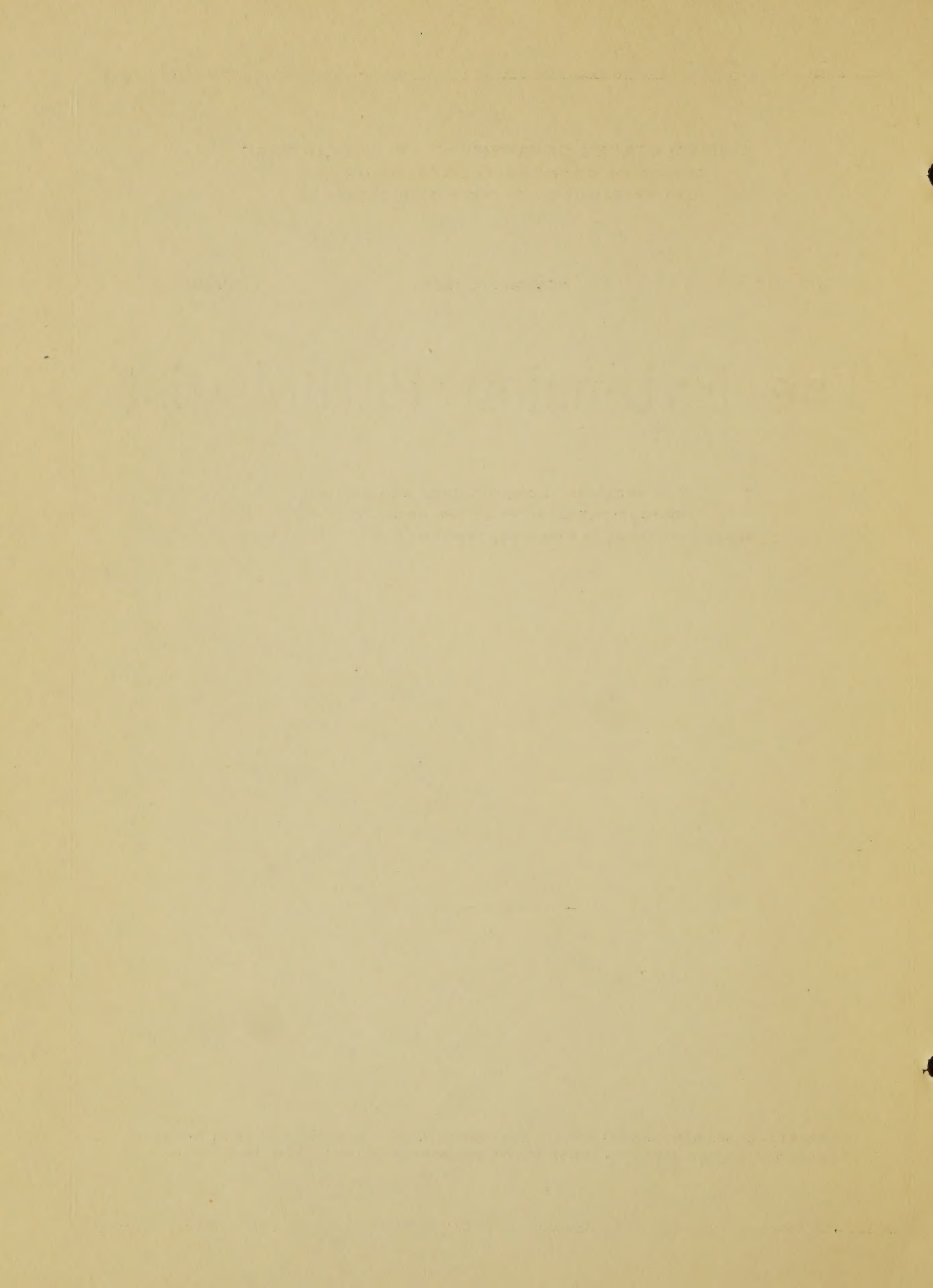
NUMBER 8

The Extension Pathologist

"TO PROMOTE ECONOMIC CROP PRODUCTION,
IMPROVE THE QUALITY OF THE PRODUCTS, AND
REDUCE WASTAGE IN STORAGE, TRANSIT, AND AT THE MARKET"



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THE EXTENSION PATHOLOGIST

Volume 3.

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Contents of this issue

	<u>Page</u>
DOING EXTENSION WORK AT YOUR OFFICE DESK.....	68-70
A LETTER FROM PENNSYLVANIA.....	70-75
NOTES ON SEED-TREATMENT WORK DURING 1925.....	75-83
Seed-Treatment Activities in Kansas.....	75-79
Potato-Seed Treatment in North Carolina....	79
The Copper-Carbonate Method in Oregon.....	79-81
Seed-Potato Treatment in Wyoming.....	81-82
Work in Virginia during the Fall.....	83
ANNOUNCEMENTS.....	83-86
Kansas City Conference on Extension Work...	83-85
The Lincoln Potato-Disease Conference.....	85-86
Section of Southern Phytopathologists to Meet in February.....	86

THE UNIVERSITY OF CHICAGO

Number 1

Volume 1

CONTENTS

1913

1-10	THE UNIVERSITY OF CHICAGO
11-20	A HISTORY OF THE UNIVERSITY
21-30	THE UNIVERSITY OF CHICAGO
31-40	THE UNIVERSITY OF CHICAGO
41-50	THE UNIVERSITY OF CHICAGO
51-60	THE UNIVERSITY OF CHICAGO
61-70	THE UNIVERSITY OF CHICAGO
71-80	THE UNIVERSITY OF CHICAGO
81-90	THE UNIVERSITY OF CHICAGO
91-100	THE UNIVERSITY OF CHICAGO
101-110	THE UNIVERSITY OF CHICAGO
111-120	THE UNIVERSITY OF CHICAGO
121-130	THE UNIVERSITY OF CHICAGO
131-140	THE UNIVERSITY OF CHICAGO
141-150	THE UNIVERSITY OF CHICAGO
151-160	THE UNIVERSITY OF CHICAGO
161-170	THE UNIVERSITY OF CHICAGO
171-180	THE UNIVERSITY OF CHICAGO
181-190	THE UNIVERSITY OF CHICAGO
191-200	THE UNIVERSITY OF CHICAGO

DOING EXTENSION WORK AT YOUR OFFICE DESK

By Albert A. Hansen, Purdue University,
Department of Agricultural Extension.

The other day both Mr. F. C. Meier, extension plant pathologist, and the morning mail arrived in our office about the same time. Mr. Meier watched the process of opening the mail and noticed that several times we turned to a group of shelves near our desk, selected sheets of paper, attached these sheets to letters, and handed them to the stenographer. At last his curiosity got the upper hand, and he inquired what it was all about. We explained that the mysterious sheets were reprints of various types of articles, that the reprints had been furnished free by the State farm paper, and that we used them extensively in our correspondence as a money-saving, time-saving proposition. He inquired further regarding our methods of publicity, then requested an article on the subject for the Extension Pathologist, and here it is. The reason for all this explanation is that if you feel this article is wasting your time, please put the blame on Mr. Meier, but, if the suggestions are of value in your work, we will modestly accept the credit.

In the first place, we do not like the word "publicity" because it connotes the wrong meaning. The primary function of the extension man is not merely to advertise his institution, but rather to render service. For this reason we believe the phrase "news information" comes closer to the target at which we are aiming.

In Indiana we make liberal use of newspapers, farm journals, and the radio in broadcasting information along weed and plant-disease lines because we believe time utilized in this manner is efficiently spent. If we can sit at our desk for three or four hours and organize information that will be read by over half of the farmers of the State during their leisure moments when they have time to read and think, we believe the time is well spent. There are many fellow extension workers who believe the same thing, but complain that they "don't know how to write." That is simply another way of saying that they have not been able to overcome their inertia, because writing requires initiative and is not particularly easy. Remember that most writing represents about 10 per cent inspiration and 90 per cent perspiration. We have been able to overcome the pencil-pushing inertia by setting aside regular hours for the work. In our case, it is Saturday afternoon when the rest of the station is closed and only the mice detract.

One of the hard things about the writing game is to be able to actually see a story, but this "nose for news" can be developed. It is surprising how much information of high news value is completely unnoticed. Unless we keep an open mind along this line, a good story may reach up from our files and slap us in the face without being recognized.

In our newspaper work we have found that stories of successful experiences among farmers are highly effective. Like most people, a farmer can visualize the individual, whereas glittering generalities go by the board. The average farmer reasons that if Bill Jones down at Buck Creek can get rid of smut by the simple process of mixing seed wheat with copper-carbonate dust, he can do the same. It is the same psychology that accounted for the tremendous success of the old-fashioned patent medicine testimonial ad, and there is no reason why extension workers can not borrow similar methods so long as we eliminate the quackery. We have also discovered that short, snappy stories go across much better than long, drawn-out, formal discussions with academic trimmings.

But this is not intended to be a treatise on the art of writing. What Mr. Meier had in mind were a few suggestions on some of the news information devices we have used successfully with the weed project that may convey suggestions of value to fellow workers. Perhaps the biggest timesaver we have discovered is the procuring of free reprints from our State farm paper, the reprints being used extensively in answering correspondence. Whenever our mail becomes clogged with numerous inquiries along the same line, we simply write an article on the subject and present the manuscript to our State farm paper. In return we receive several hundred reprints which we enclose in our correspondence, thereby saving time and money (particularly during the busy season) on expensive dictation and typing. The arrangement is mutually beneficial, because the reprints contain the name of the journal in which the article is published, and this is good business for the publishers.

We have run a number of series of articles that seem to have been well worth while. For instance, our seed law specifies 19 weeds as noxious, so we issued a series of 19 stories covering these culprits. It happens that our most important State farm paper reaches about 130,000 of the 210,000 farms in Indiana, so the information became pretty generally broadcasted. During one winter we issued a series of 20 short articles entitled "Weed Chats" that were distributed among the newspapers of the State, particularly those with farm pages. The object was to take advantage of the lull in farm news that naturally occurs during the comparatively inactive winter months, and the idea seemed to go across, judging by the number of papers that subscribed for the series.

We have turned out other series of articles that we hope have been helpful, a three-article contribution on Canada thistle, the worst weed in northern Indiana, and a similar triplet of stories on wild garlic, the worst pest in southern Hoosierdom. Perhaps extension plant pathologists in other States might find a series of articles on the most troublesome local problems acceptable material for their State farm paper and helpful in putting their work across.

Although I hesitate to mention that threadbare extension bugaboo of setting a goal, we do try to issue at least one newspaper story a week along our particular line of work. Having a definite object for an aim helps to overcome that inertia.

During the winter months we are still old-fashioned enough to use lantern slides in talking to farmers' institutes, farm bureau meetings, short courses, and so on. We believe the efficiency of this work has been increased by using mimeographed articles concerning each talk with blank spaces for filling in the data necessary to give local color. This is a time-saving device that helps to get local publicity which, in the last analysis, is the finest form of news information. We try never to leave a county without giving the local newspaper a story, including information of value to the neighboring farmers concerning our visit.

All news must be timely in order to be news, therefore we have found it necessary to train ourselves to look ahead. Now we are getting ready for the pure-seed campaign to be held during seed-buying time next winter. As part of the campaign we are issuing a "Know a Seed a Week" series of 15 short articles on the worst weed seeds found in clover and grass seed. Each article will be featured by a picture showing a highly magnified view of the weed seed being considered. This picture is planned to arouse the interest of our farmers and to assist them in identifying our most dangerous weed seeds. Now we must stop and get busy on this new assignment.

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A LETTER FROM PENNSYLVANIA
(An Informal discussion of Extension Methods)

While in Florida last September my attention was called to a letter which M. R. Ensign had just received from E. L. Nixon of Pennsylvania. After reading this I wrote to State College requesting permission to use the letter in the Extension Pathologist. While Nixon was somewhat reluctant to have his "hasty remarks" given further circulation, he finally told us we could use the material if we thought it worth while. Feeling that this letter should, by all means, be given further distribution, we are including it in this issue. In this informal discussion of the ways in which Pennsylvania farmers are being assisted with their disease-control problems, we get an insight into the personal side of extension work in plant pathology. Some months ago I traveled in the Keystone State and was witness to the high esteem which the farmers have for our colleague. The figures given on page 74 are convincing. A week's travel in the State is even more so. Nixon's methods work. F. C. M.

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THE HISTORY OF THE UNITED STATES

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State College, Pa.,
September 17, 1925.

Prof. M. R. Ensign,
Entomologist-Plant Pathologist,
University of Florida,
Gainesville, Fla.

Dear Professor Ensign:

In your letter of September 12 you asked a number of questions about the work in this State. I wish there were opportunity to talk with you about our methods of handling extension work in plant pathology. It seems so unsatisfactory to write. There are many personal touches that one must, of necessity, overlook or omit, and, after all, I feel that the human side is as important in methods as any other.

In the first place, we try to determine very definitely in our own mind just what problem confronts a community. If, on visiting a group of farmers in company with the county agent, we find that because of certain plant-disease problems they are actually losing money, we see that a meeting is called in that locality. At this meeting the men concerned with a given problem are brought together. It may be that they need to spray their potatoes, plant disease-free seed, spray for apple scab, or put out disease-free raspberry plants. Whatever the problem may be, we frankly tell growers what we can of the situation so far as crop losses are concerned, and just what can be expected in the way of returns if certain control measures are adopted.

Take, for example, potato spraying. At some meetings we have made the statement that if potatoes in the section involved are sprayed properly one can expect to receive one-half again as many potatoes per acre at a cost not to exceed \$10.56 per acre. Usually the immediate answer to this proposition is "We have more than we can do now - we do not see how we could get time to make these seven or eight applications of spray which you recommend." This is particularly true when the men are practicing general farming, and aim to plant simply an acre or two of potatoes. We meet this problem by suggesting that a spray ring be organized, one man being employed to spray the potatoes on several farms in the community. The route of the sprayer is usually gone over with the employers present, each stating how far the rig would have to be pulled to the next farm until the ring is completed. We have found that 20 men can sometimes be taken care of where farms are adjoining, the distance to be traveled not more than 5 or 6 miles, and the total area to be sprayed not exceeding 50 or 60 acres. It is frequently the case that two or three of the members will grow potatoes on a fairly large scale, having perhaps one-half of the acreage involved. They often work with the group until they are shown that they can well afford to do their work individually. This we find is perfectly practical where the fields are 4 or 5 acres in size. In other words, we believe that a potato grower who is out for real yields can afford to purchase an efficient sprayer for his 4 or 5 acres. We have fairly definite figures to prove this conception. The spray ring idea has been developed to meet the question which is always coming up "What about the growers with the smaller acreage?" Where the plan has been carefully carried out the results have been extremely satisfactory.

This year we have had very close to 100 such potato spray rings in operation in the State. The largest number of farms in any one ring was 23, the smallest field on a single farm being 1/2 acre. This we feel is about the extreme condition, and unless we have a good boy, usually an agricultural student from the college, to see that the work is done, there will be some danger of failure.

The promoting of individual potato spraying is not difficult. It is simply a case of proving to the grower that his loss in yield, due to the foliage diseases which are controlled by spraying, is such that he can make more money riding the sprayer than by any other operation in his potato field. Of course we have the evidence to substantiate this argument. Most growers have fallen for it, and are conducting the work themselves.

Take the matter of better seed. This is a problem which is, of course, applicable to your State if the spraying is not. It is our aim here to know where there is a supply of good seed potatoes of the variety which the community under consideration wants. It is then a case of convincing the growers in the particular community which is having trouble that their seed is bad, and that they need a supply of dependable seed. This is usually done in field meetings during the growing season when it is possible to point out to them the things that are wrong with their plants. Many of the growers come back with the argument that "We would like to take 10 or 15 or more bushels of this improved seed, but how would it be practical for us to get such a small amount?" We then show them how orders can be pooled in the community and, the first thing we know, orders go in for a carload of such seed. This is sometimes purchased by a dealer who works on a small margin of profit. In other instances a small cooperative association is organized for the sole purpose of supplying this seed for its members. Last year over 400 carloads of such seed was distributed to Pennsylvania growers. One-half of this amount was grown in our own State, also on a community plan, but with the growers organized for the sole purpose of growing the kind of seed that the other communities are demanding.

There are also many farmers who grow a small amount of fruit who feel that they are not in a position to purchase spray machinery which will protect their orchards efficiently. They recognize that they have good markets close at hand, fairly good trees at home, and they are sold to the idea that spraying, if done right, will bring clean fruit. The chief difficulty is "How are we going to spray our farm? Our chief business is growing corn, raising hogs and milking cows." The proposition up to us as specialists and county agents then is to make the work apply to the given community on a practical basis, that is, in a manner that will work in with the other general farm operations. This is done by a little organized community effort as a result of which four or five farmers club together

to purchase and operate an efficient sprayer. Oftentimes they employ a boy to do the work for them for the season. This makes it possible to get away from the barrel pump idea.

Keep in mind that all such early work is put on as a definite extension project and that we are present at all the critical times during the season. The county agent must recognize in laying out his program of work for the year that this is also one of the definite things that he is going to look after with the assistance of the specialist. In the beginning we do not attempt to cover a county completely in one season, but instead we aim to carry on one or two of these community endeavors and see that the work goes across well. Checks are left in these instances to show exactly what the proposition means in dollars and cents. Some of our older counties now have as many as 60 of these spray rings including potatoes and fruit, and all of them taken together do not demand as much attention and time on the part of the specialist and county agent as the first one or two that were put on in the county.

It is remarkable and rather marvelous how the farmers will take to these ideas when they are put on in a practical way and where they are shown that it is a tremendously profitable operation. These projects spread in counties like wildfire. At the annual meetings of the farm bureau the community leaders report the results of activities in their respective communities, most of them figuring it down to a strictly dollars and cents proposition. That is about the only way we estimate results of our work. We remember one man reporting a few years ago that for every 250 feet he rode his sprayer he made \$4. Some one asked him then if his problem had not now become breeding race horses so that he could cover the ground more rapidly.

I have probably outlined in sufficient detail the methods that we use to put the work across. To summarize, in the first place, we must know very definitely that there is a problem in plant pathology or entomology in a given community, and that the control of a particular disease will be profitable. It is then necessary to set out to determine the most practical way to do this job, whether it is one involving cereal-seed treatment, spraying plants, planting disease-free seed or some other practice that we know will work. Finally, I feel that the chief job of the specialist is to sell the county agent. This is sometimes much more difficult than selling the community the idea that we have in mind. We have found here that in many instances we have to completely surround the county and exert pressure from the outside in. We started our potato work with 11 counties in the State and 13 communities. Now it has reached every county in the State that has an extension representative. Some idea of the status of our work at the present time is given by the following statistics:

Some Statistical Data in Plant Pathology Extension,
Pennsylvania State College, 1924

	Number
Farms visited.....	1,077
Farmers' meetings held.....	125
Demonstration meetings held.....	138
Automobile tours conducted.....	17
Attendance at all meetings.....	14,468
Farmers treating seed potatoes.....	625
Demonstrations conducted.....	32
Farmers treating cereals for smut.....	2,235
Demonstrations conducted.....	14
Demonstrations conducted in seed and soil treatment of vegetables.....	12

For the 1924 season 8,029 potato growers of the State purchased 195,475 bushels of disease-free seed. The average increase in yield over home-grown seed, much of which was only one or two years removed from disease-free seed, was 62.1 bushels per acre.

Results of Seven Years of Potato Spraying

Item	: 1918	: 1919	: 1920	: 1921	: 1922	: 1923	: 1924
Counties.....	: 12	: 26	: 46	: 57	: 63	: 63	: 64
Demonstrations.....	: 32	: 224	: 318	: 402	: 447	: 220	: 174
Acres sprayed.....	: 314	: 1,787	: 6,192	: 10,140	: 16,680	: 23,000	: 28,646
Average yield per acre..	: 142	: 169	: 258.3	: 233.5	: 220	: 257	: 230.7
Average increase per acre.....	: 34.8	: 42.9	: 74.7	: 74.3	: 66	: 58	: 66.6
Average per cent of increase.....	: 32.2	: 34.2	: 41	: 47.7	: 44	: 30	: 40.4
Average cost per acre	: \$ 8.26	: \$10.35	: \$10.56	: \$11.03	: \$10.34	: \$11.00	: \$11.00
Number average times sprayed.....	: 5	: 5.5	: 6	: 6.5	: 6.8	: 7	: 7

I am enclosing a list of the projects that we are working in this State. It is my hope that these notes will be of some service to you. If we can be of assistance at any time in the future please let us know.

Very sincerely yours,

(Signed) E. L. Nixon,
Professor of Extension Pathology

NOTES ON SEED-TREATMENT WORK DURING 1925

Looking over the plans submitted by specialists for their work in 1925, it is evident that in many States considerable attention is being given to seed treatment. In many instances this phase of the extension program has passed the demonstration stage and the specialist makes no effort to procure detailed records. Instead his work is largely confined to putting reminders before the farmers at the proper time and making arrangements to facilitate purchase of the necessary chemicals and equipment. Among the seed treatment projects listed for attention in 1925, we find hot formaldehyde, cold formaldehyde, hot corrosive sublimate and cold corrosive-sublimate treatments for seed potatoes; copper carbonate, organic mercury compounds, and hot-water treatments of cereals; hot-water treatment of cabbage seed; corrosive-sublimate treatment of sweetpotatoes; tobacco-seed treatment, and sulphuric-acid treatment of cottonseed.

Preliminary reports have been received from some States with regard to the outcome of this work. The following notes will be of interest in this connection. F. C. M.

Seed-Treatment Activities in Kansas

Since nearly all seed sweetpotatoes used in the State are treated before bedding, we have no figures on comparative yields produced by plants grown from untreated and treated stock. In the case of the potato and sorghum-seed treatments, we have some reports which may be of interest.

This being the first year that copper-carbonate seed treatment has been recommended for the control of sorghum kernel smut, the results are of interest. The seed was treated by community effort last spring, demonstrations being scheduled for every township in the several counties concerned. The growers brought their seed to the demonstration where it was treated in the presence of the various farmers cooperating. In many instances growers who treated

badly smutted seed agreed to plant a few rows with untreated seed in order that the results might be compared. Sincere as many of them were at the time this promise was made, the majority forgot all about it, and I was somewhat disappointed this fall to find but a few check plots ready for harvest.

The plan for next year will be to hold the township method demonstrations in much the same way. Instead of depending upon the grower to plant a test plot for us, we will select badly smutted seed grown by 10 or more farmers in each county. Three demonstration plots will then be held in the county for the purpose of comparing the performance of untreated seed with seed from the same lot which has been treated with copper carbonate. These samples of treated and untreated seed will be planted side by side, a given quantity of seed being planted in rows of a prescribed length. At harvest time a county tour will be scheduled, arrangements being made for the farmers attending to stop at the demonstration plots in the county as well as at individual plots that the various growers may have laid out. It is felt that these demonstration plots will do more to convince the unbelievers than anything else.

Tests of treated and untreated sorghum seed were made in five counties last spring, records being taken this fall. The following summary shows the results obtained:

Results of Sorghum-Seed Treatment
Demonstrations for control of Kernel Smut, in
Kansas, 1925

County	Number of tests	:	Smut infection	
			Before treatment	When harvested
			(Percentage of smut balls)	Treated plot : Untreated
Finney...	3	:	29	: 1 per cent Smut: No check
Ford.....	11	:	6	: Trace smut : 21 % smut
Hodgeman..	5	:	11	: Trace smut : 24 % smut
Ness.....	5	:	7	: Trace smut : 11 % smut
Rush.....	4	:	4	: No smut : 24 % smut
Average...	6	:	14	: Trace smut : 23 % smut

Although sorghum-seed treatment has been recommended for several years in Kansas, yet growers in general were not quick to follow the practice until it was found that copper carbonate would do the work. Although this dust was not generally recommended in 1924, yet a considerable amount of it was used in a few of the counties. It is interesting to know how rapidly the

growers have taken to the use of copper carbonate. The following table shows the acreage treated in five counties every year since 1922. The figures for 1922 and 1923 are estimates of the county agents, whereas the figures for 1924 and 1925 are much more accurate, being based on the known acreage treated or the quantity of dust sold by local dealers in the various counties.

How Kansas Sorghum Growers have taken
to Seed Treatment

County	Acreage planted from treated seed			
	1922	1923	1924	1925
Finney.....	100	200	1,400	4,000
Ford.....	300	600	1,200	5,500
Hodgeman.....	150	250	2,300	6,000
Ness.....	200	200	2,250	4,500
Rush.....	200	200	1,200	5,000
Total.....	950	1,450	8,350	25,000

Seed Treatment of Potatoes

Potato-seed treatment in Kansas is becoming an old story, but it is interesting to know how the growers have taken to the use of hot formaldehyde as a substitute for the cold corrosive sublimate which they have been using for four or five years. The following table gives this information.

Potato-Seed Treatment in Kansas,
1921-1925

Year	Total acreage	Hot formaldehyde	Acreage treated with corrosive sublimate	Total	Percentage of acreage treated
1921....	17,500	0	2,200	2,200	13
1922....	18,000	0	3,000	3,000	17
1923....	16,000	500	4,000	4,500	28
1924....	18,000	700	6,000	6,700	37
1925....	16,000	9,205	1,809	11,074	69
Average:	17,100	2,095	3,402	5,494	32

Several interesting seed-treatment tests were made in cooperation with various growers in the Kaw Valley and Arkansas Valley this year. One of the most interesting of these was a test of fall versus spring treating. This test was conducted on the farm of Mr. J. W. Trant of Edwardsville, with the following results:

Fall Versus Spring Seed Treatment.

Treatment	: Total Yield:	U.S. No. 1:	Scab
	: (Bushels)	: (Bushels)	: (Percentage)
Spring - corrosive sublimate,	:	:	:
1-1000, for 90 minutes....:	305	156	15
Fall - hot formaldehyde,	:	:	:
125°F. for 3 minutes.....:	286	186	4
	:	:	:
Fall and spring - hot formaldehyde,	:	:	:
double treatment.:	267	186	3
	:	:	:
Spring - hot formaldehyde.....:	254	163	9
	:	:	:
Untreated.....:	169	104	15

Another interesting test was conducted in two counties to determine the effect of seed treatment with either hot formaldehyde or corrosive sublimate on sprouted seed. The results of these tests are given below.

Influence of Seed Treatment on Sprouted
Seed, 1925

County	Treatment and yield		
	: Hot formaldehyde	: Corrosive sublimate	: Untreated
Wyandotte.....:	249 bushels per acre:	210 bushels	272 bushels
Jefferson.....:	- - - - -	224 bushels	226 bushels

Treated seed yielded 53.6 bushels per acre more than did the untreated seed in the demonstration plots in Kansas this year. This large increase is partly due to the fact that the season was very favorable for both Rhizoctonia and blackleg development. Seed treatment with hot formaldehyde yielded about 6 bushels per acre more than that treated with corrosive sublimate. This would help to bring up the average increase per acre due to seed treatment, for most of the farmers who treated used hot formaldehyde.

D. R. Porter.

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Potato-Seed Treatment in North Carolina

Seed treatment of Irish potatoes has developed mainly in the mountainous portion of the State in connection with the seed production industry in that section. The potato growers as a rule are interested in diseases of the potato crop and are coming to realize the importance of the various control measures. Up to the present, individual seed treatment has been followed rather than community seed treatment. This is due to the fact that the seed growers are somewhat scattered and the section in which the greater portion of the seed is grown, which ranges in altitude from 3,000 to 5,000 feet, is rather rugged. During the past three years the cold corrosive-sublimate method has been used more commonly than any other. This year 640 cunes of the chemical were obtained through this office for the treatment of seed in one county alone. Disease control has been satisfactory, generally speaking, where seed treatment and adequate spraying have been practiced.

G. W. Fant.

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The Copper-Carbonate Method in Oregon

As is well known, stinking smut of wheat is of more importance in the Pacific Northwest than it is in the Middle West or most other parts of the country. This is due to several reasons. Among these are the following: Climatic conditions favorable for smut development; the growing over large areas of varieties of wheat which are particularly susceptible to smut, and the fact that in the Columbia River basin country we have an area which grows practically nothing but wheat. In the wheat counties diversified farming is practically unknown.

Losses from smut include a reduction in the crop itself; the dockage in price received on grain containing smut; the cost of treating seed, and the delayed germination and weaker growth caused by treating with either formaldehyde or copper sulphate. Practically all of our wheat growers

formerly treated for smut in some manner. Some of them used formaldehyde, but in regions where the smut was particularly bad, copper sulphate was more effective. This was used either alone or on some farms was followed by a lime bath to cut down the injury to the seed. When the new method of treating with copper carbonate came out therefore, our problem was to substitute this method for the older one. We did not need to convince the growers of the necessity of treating for smut - the job was merely one of replacing one form of treatment by another which we believe to be better.

In the fall of 1921 we arranged demonstrations in 125 acres in the grain area of Oregon. Most of these demonstrations were 1-acre plots in large grain fields. The 1 acre was seeded to grain treated with copper carbonate, and the balance of the field was planted with seed which had been subjected to the old wet methods of treatment. During the summer of 1922 the results of these demonstrations were very apparent, and, in some cases, outstanding. The stand on the copper-carbonate seeded plots averaged 40 per cent better than on the balance of the field, and the thicker grain showed less weeds. The yields were on the average about 2 bushels per acre higher than on the adjoining portions of the field treated with formaldehyde and bluestone.

The following year additional tours were held and results were again so striking that the new method did not require much additional effort to convince the growers of its practicability.

Local papers played an important part in the campaign. In addition to publishing stories of the results, these papers gave space to detailed instructions concerning the new method.

In the meantime, the experiment station chemists had been busy analysing all the brands of copper carbonate available, and they definitely recommended to the county agents the brands which were suitable and best for the control of smut. The work of our experiment station indicated that only copper carbonate, which would pass through a 200-mesh screen, and that which contained at least 50 per cent metallic copper, should be used. With this information, the various county agents saw all the dealers in their counties who were handling copper carbonate, gave them the names of the reliable houses, and obtained their promises to handle only the best quality of material. Incidentally, the cooperation which we have received from dealers all over the State in the adoption of the new method has been splendid. They have held the prices of material down to the very minimum, contenting themselves with an extremely small profit in order to sell the copper carbonate to farmers at a cost only slightly above the wholesale price.

In the fall of 1923 farmers seeded 305,075 acres to copper-carbonate treated grain. In the fall of 1924 the total was nearly 600,000 acres. An unprecedented freeze experienced last winter necessitated the reseedling of almost our entire winter wheat acreage in the State. This spring, therefore, we had our 1,000,000 acres of winter wheat to seed, in addition to the area

of spring grain. Practically all of the farmers who used copper carbonate last fall used it again this spring, and the acreage seeded amounted to about 800,000 treated with copper carbonate.

The only parts of the State where the treatment is not in general use now are those which are not distinctly wheat-growing sections, but where a few acres of wheat are grown on general farms. These folks are not so vitally interested in their wheat crop, and in many cases these counties have no county agent. Over 90 per cent of the area in the strictly wheat-growing counties is now seeded to copper-carbonate treated grain.

We did not find it necessary to organize any extensive campaign as the benefits of the new method were entirely apparent as soon as they were demonstrated. We, therefore, did not put out any posters, hold any large winter meetings, or adopt slogans.

E. R. Jackman.

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Seed-Potato Treatment in Wyoming

The potato-seed treatment project was developed for the purpose of reducing losses caused by scab and Rhizoctonia. As a result of work done in previous years, many of the farmers who have been growing certified seed, now use the corrosive-sublimate treatment. The work done this year was largely for the benefit of farmers who are just beginning to grow seed and others who wish to improve the quality of the crop which they grow for table purposes.

We encouraged the use of community treating vats. Sometimes cattle or sheep dipping vats were used for this purpose. Usually the first method demonstration was held in a community centrally located in the county, later meetings being scheduled in the adjacent outlying communities. Actual treatment demonstrations were conducted by the specialist and county agent in three counties.

When conducting these demonstrations local people were held responsible for making arrangements. It was expected that they would have the corrosive sublimate on hand and provide the vat and crates for dipping the potatoes. These same local cooperators were under obligation to plant a certain amount of untreated seed for comparison with treated lots.

In order to make the practice popular and at the same time to spread information on potato diseases, field inspection was promised to all those who brought seed to be treated, and who would sign the mailing card promising to carry on a seed treatment demonstration. Each cooperator was supplied with literature dealing with methods of making the treatment.

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1925 - Potato-Seed Treatment Application - 1925

County Agent _____ :

I hereby agree to conduct the outlined Potato-Seed Treatment Demonstration in 1925. This means that I will plant a part of my field to both treated and untreated seed and report the results to you. Kindly return this blank to me at harvest time, and I will fill it in to the best of my ability.

Seed	:	Amount planted;	:	Per cent Rhizoctonia	:	Per cent scab	:	Yield
	:	acres or pounds	:		:		:	
Treated	:		:		:		:	
Untreated	:		:		:		:	

Name of grower

Address

Printed placards, 14 by 22 inches in size, were furnished to each co-operator. These cards, which were prepared for display near the highway, bore the inscription:

Potato-Seed Treatment Demonstration Field Wyoming Extension Service

Field notes were taken at the time of field inspection, and the information obtained from these, together with records taken at harvest time, will be made known to growers through the local papers in the course of our publicity work this winter.

At the present time we do not have accurate figures concerning the extent to which the practice has been adopted. We do know, however, that in 1925, 11 communities treated seed potatoes for the first time.

Roy O. Westley.

Work in Virginia during the Fall

Mr. James Godkin, Extension Pathologist, Virginia, was in the office on November 2. Mr. Godkin reports having had many calls for assistance in treating seed for control of loose smut of wheat and barley. Hot-water treatment demonstrations followed by successful germination tests were put on in several localities in the State. Copper carbonate has also been popular in some sections of Virginia this fall.

ANNOUNCEMENTS

Kansas City Conference on Extension Work

On September 29, Dr. R. J. Haskell, Secretary-Treasurer of the American Phytopathological Society, wrote to pathologists in the 48 States, calling attention to the conference on extension work which is scheduled for Tuesday afternoon, December 29, as a part of the program of the midwinter meeting. In this letter Dr. Haskell mentioned two subjects which were being considered for discussion. These were (1) "Special service work for growers in communities where the land is largely given over to the growing of one crop," and (2) "Methods of training county agents with a view to improving their knowledge of local problems and methods of extending results of research." He then asked for further suggestions as to material which should be included in this program.

The response to this letter has been such as to show the keen interest which prevails on the subject of extension work. The following excerpts from some of the replies, coming from both station and extension workers located in the North, South, East, and West, are typical:

"The two subjects you mentioned in your letter will be of special interest to me as a beginner in extension work."

"I will be very glad to attend the conference as I am sure I will always learn something new at such meetings."

"Anything on methods of reaching specialized growers such as market gardeners, tobacco planters, and orchardists, will be of interest to us."

"I believe quite a few would be interested in discussing methods of measuring results of demonstrations."

"I would like very much to hear both of these subjects discussed. I have attempted to do some work along both lines, but up to date have not made much progress."

"The two topics suggested for discussion in connection with extension work in plant pathology for the winter meeting are entirely appropriate and worth while. I can not think of anything more satisfactory and believe the two topics will cover the fundamental problems connected with extension work."

"The topics you suggest would certainly be of interest to us here. I would like to hear them discussed."

"In regard to further suggestions for your program committee, it is my suggestion that the program be not overloaded. A session which is too heavy with topics is likely not to be so profitable as one which has few topics and more discussion."

"The two topics which you mention would be of special interest at this time, and I feel sure that all of the men engaged in pathological extension work would be very much interested in them."

"I am glad to note that the plant pathologists are going to devote a complete session to discussing ways of getting farmers to adopt control practices."

"The topics suggested are important and should result in some very interesting discussions. I wonder if we could discuss "The Relation of Subject-matter Departments to Extension Pathologists."

"The two topics you suggested seem to me very worthy of consideration; in fact I have had in mind the idea of county agent training as one of our most difficult problems. It occurs to me that the annual meeting of the county agents in various States can be very largely utilized in training in teaching methods."

"Regarding other subjects a topic that would interest me immensely would be the proper line to be drawn between extension work and research work. How much plant-disease survey work, how much correspondence to growers and farmers regarding disease problems, and how much of the talks at meetings of farmers should be attempted by research men? When does the extension of research into various local conditions become a demonstration that belongs to extension work? These questions come to me nearly every day in the course of my work."

"We are trying a new attack - that of educating our Smith-Hughes men and Smith-Hughes students in general pathology, taking up some 10 to 12 diseases common in the State, furnishing them with working outlines and material for the same to fit in with their regular scheme of activities. We have had very excellent results from this work. It acts as an introduction to students who will later come to us and also furnishes contact

with the fathers of these students on the farms."

"Am quite sure the topics mentioned in your letter would be of interest to our representatives."

"The program which you outline would fit in very nicely with the situation here, where concentration on special crops is the rule. If I were to suggest topics for the conference I would surely include those which you mention. I think perhaps the most important development in the future will be in the training of county agents so that they may be better qualified to extend to their constituents the information we are able to give them."

"The questions given in your letter of September 29 to be used as a basis of discussion for the extension meeting at Kansas City, appeal to me as being very good and questions which will include a wide range of topics."

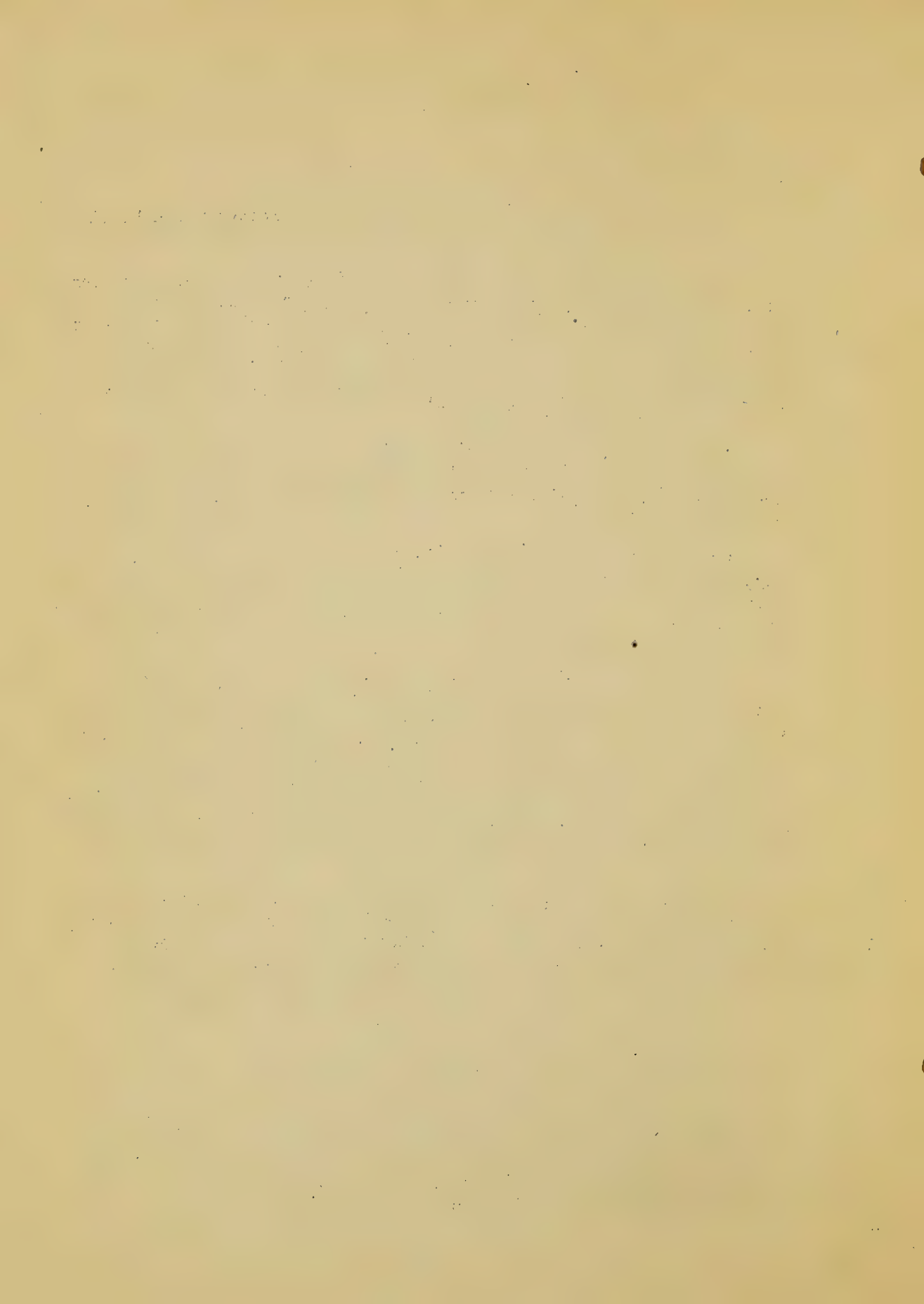
"I think both the subjects which you mention in your letter are very worth while especially the second on methods of training county agents. Our county agents are very much in need of information regarding plant diseases, as only a small percentage of them have ever had any work along this line."

"The two topics you have assigned for the round-table conference on extension work seem to me to be of a nature to provoke a discussion. They are subjects in which we are interested in this State, and may be able to contribute something. If these topics are fully developed, I doubt whether there will be time for any other topics to be presented - at least it would not be possible to develop others very fully. There are likely to be other topics presented during the afternoon, and a few of them will, doubtless, receive some consideration."

Since it seems that sentiment is in favor of centering the discussions around the two subjects mentioned above, the conference will be conducted with this in mind. Bring your problems to Kansas City on December 29. This opportunity for talking things over with our colleagues should lead to a stronger program for presenting plant-disease control to the public.

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The Lincoln Potato-Disease Conference

In the October number Dr. Peltier presented plans for the potato-disease conference which will be held at Lincoln, Nebr., on Monday, December 29. Since that time word has been received from Dr. Peltier to the effect that enough material has come in to make this a most worth-while session. The following statement about railroad rates has been issued:



"All men coming from the north and west of Lincoln can obtain a stop-over in Lincoln without invalidating their reduced fare tickets to Kansas City. For those north and east of Lincoln, transportation to Kansas City via Omaha can be purchased with a stop-over at Omaha, a 75-minute journey from Lincoln. Arrangements can be made to continue the trip direct to Kansas City on Monday night by special Pullman without returning to Omaha, by paying the difference between the rate from Omaha to Kansas City and Lincoln to Kansas City. For persons coming from the South and Southeast a straight fare from Kansas City to Lincoln and return will be necessary. The total expense of the round trip from Kansas City to Lincoln, including return Pullman, will be slightly in excess of \$15."

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Section of Southern Phytopathologists to
Meet in February

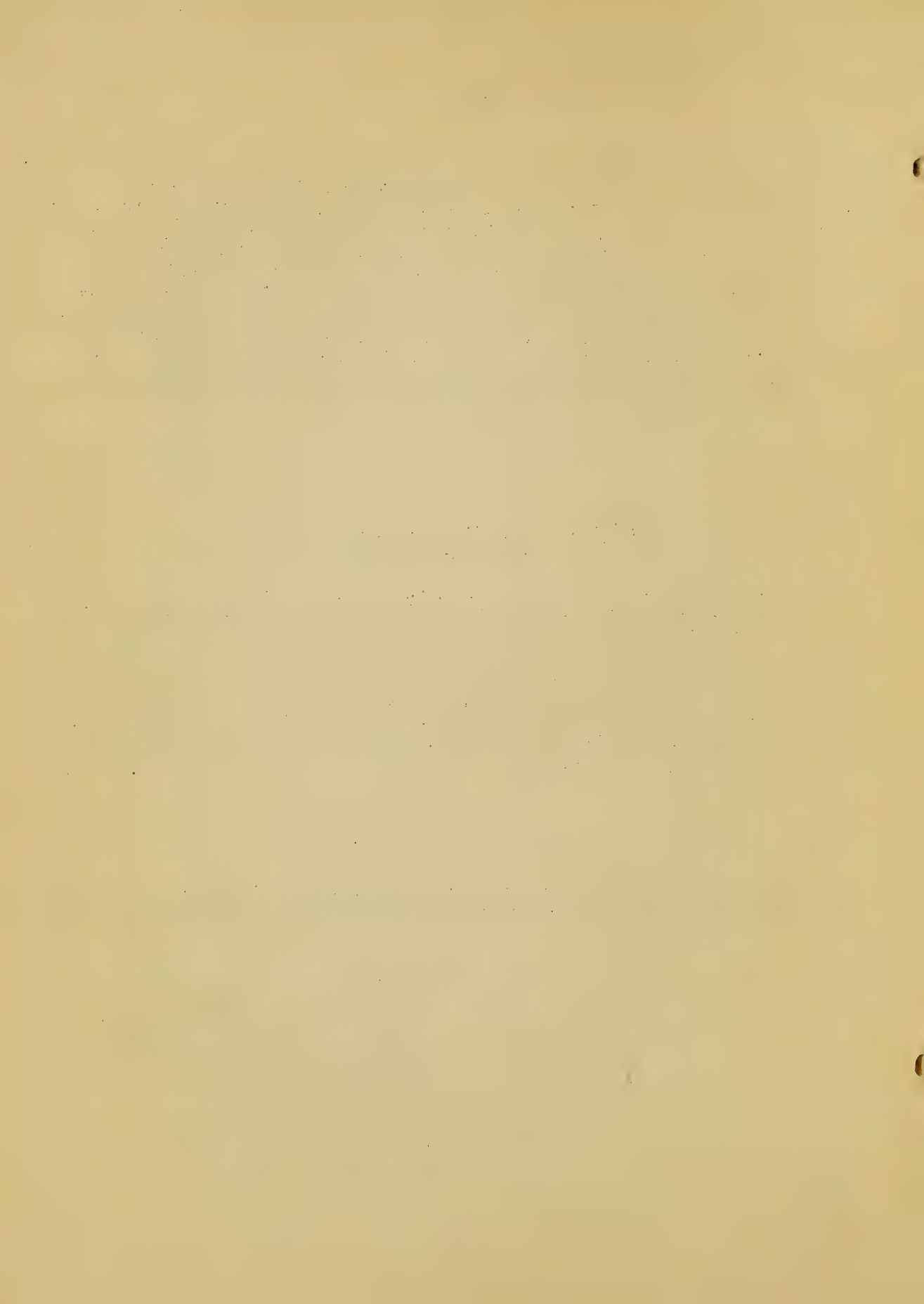
Word has been received from Dr. L. E. Miles, Secretary, Section of Southern Phytopathologists, Association of Southern Agricultural Workers, to the effect that the annual meeting of the Southern Section of the American Phytopathological Society will be held this year as formerly in connection with the meeting of the Association of Southern Agricultural Workers. This meeting will be held at the Biltmore Hotel, Atlanta, Ga., on February 3, 4, and 5, 1926. All botanists, pathologists, and others interested in similar lines of work, are urged to attend and take part in the coming meeting. The printed program will be forthcoming early in December,

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News notes, extension articles, or suggestions with regard to subjects that might be discussed profitably in this news sheet should be addressed to:

Fred C. Meier,
Extension Plant Pathologist,
Bureau of Plant Industry and Office of
Cooperative Extension Work, United
States Department of Agriculture,
Washington, D. C.

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THE EXTENSION PATHOLOGIST
SUPPLEMENT III
Index



Volume III, Numbers 1 thru 8.
January thru November, 1925.

- American Phytopathological Society, Announcement, Cereal Disease Field Conference, p. 38
- American Phytopathological Society, Announcement, Pacific Division, Annual Meeting, 1925, p. 38.
- American Phytopathological Society, Announcement, Southern section to meet in February, 1926, p. 86.
- Arkansas Field meetings, p. 38.
- BIER, Robert. Food Products Inspection Service, p. 56.
- Connecticut Field meeting, p. 39.
- Corn root-rot, extension work in Indiana. C. T. Gregory, p. 21.
Root stalk and ear rots and the Extension program. F. C. Meier, p. 17.
Finding better seed -- in Illinois. J. C. Hackleman, p. 18.
Outline of demonstrations on seed -- selection with special reference to internal cob discoloration. R. A. Jehle and F. W. Oldenburg, p. 24.
- Extension conference in Washington, D. C. Report. Dec. 30, 1924, p. 2.
- " " in Kansas City. Announcement. Dec. 29, 1925, pp. 53, 65 and 83.
- Handbook. T. Weed Harvey, p. 26.
- Literature, pp. 15, 28, 43 and 53.
- Methods, A letter from Pennsylvania to Florida. E. L. Nixon, p. 70.
- Work at your office desk, Doing. Albert A. Hansen, p. 68.
- FANT, G. W. Extension work in North Carolina in orchard disease control, p. 34.
Potato-seed treatment in North Carolina, p. 79.
- Florida changes in Personnel, p. 27
Field meeting, p. 39.
- Food Products Inspection Service. Robert Bier, p. 56.
- GREGORY, Chas. T. Extension work on corn root-rot in Indiana, p. 21.
- HACKLEMAN, J. C. Finding better seed corn in Illinois, p. 18.
- HANSEN, Albert A. Doing extension work at your office desk, p. 68.
- HARVEY, T. Weed. Extension Service Handbook, p. 26.
- Inspection work, Extension opportunities growing out of --, F. C. Meier, p. 61.
- JACKMAN, E. R. The copper carbonate method of wheat-seed treatment in Oregon, p. 79.
- JEHLE, R. A. Outline of demonstrations on seed corn selection with special reference to internal cob discoloration, p. 24.
- Kansas, Changes in Personnel, p. 11.
- Market pathology and its relation to the Extension program. F. C. Meier, p. 44.
- " " in the United States. Dean H. Rose, p. 44.
- MEIER, F. C. Corn root, stalk and ear rots and the extension program, p. 17.
Inspection work, Extension opportunities growing out of, p. 61.
Market pathology and its relation to the Extension program, p. 44.
- Motion picture "Why strawberries grow whiskers", p. 14.
- NIXON, E. L. Extension methods in a letter from Pennsylvania to Florida, p. 70.
- OLDENBURG, F. W. Outline of demonstrations on seed corn selection with special reference to internal cob discoloration, p. 24.
- Orchard disease control, Extension work in North Carolina in. G. W. Fant, p. 34.

THE GREAT WALL OF CHINA

By Sir Martin Galle

The Great Wall of China is one of the most famous and most important of the world's great monuments. It is a long, continuous wall of stone and brick, built by the Chinese to protect their country from invasions. The wall is over 13,000 miles long, and it is the longest wall in the world. It was built by the Chinese over a period of more than 2,000 years. The wall is made of stone and brick, and it is built on a high, steep mountain. The wall is built in a zig-zag pattern, and it is built in a way that it is difficult for an invader to climb. The wall is built in a way that it is difficult for an invader to see. The wall is built in a way that it is difficult for an invader to hear. The wall is built in a way that it is difficult for an invader to smell. The wall is built in a way that it is difficult for an invader to taste. The wall is built in a way that it is difficult for an invader to feel. The wall is built in a way that it is difficult for an invader to think. The wall is built in a way that it is difficult for an invader to act. The wall is built in a way that it is difficult for an invader to live. The wall is built in a way that it is difficult for an invader to die.

The Great Wall of China is a symbol of the Chinese people's strength and courage. It is a symbol of the Chinese people's unity and solidarity. It is a symbol of the Chinese people's determination to protect their country from invasions. The Great Wall of China is a symbol of the Chinese people's pride and honor. It is a symbol of the Chinese people's love for their country. The Great Wall of China is a symbol of the Chinese people's faith in their future. It is a symbol of the Chinese people's hope for a better world. The Great Wall of China is a symbol of the Chinese people's dream of a peaceful world. It is a symbol of the Chinese people's vision of a world where everyone lives in harmony and peace. The Great Wall of China is a symbol of the Chinese people's spirit of adventure and exploration. It is a symbol of the Chinese people's desire to discover new things. The Great Wall of China is a symbol of the Chinese people's love for life and for the world. It is a symbol of the Chinese people's faith in the power of the human spirit. The Great Wall of China is a symbol of the Chinese people's hope for a better future. It is a symbol of the Chinese people's dream of a world where everyone lives in harmony and peace.

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- Orchard spray service work in West Virginia. E. C. Sherwood. p. 31.
- PORTER, Donald R. Seed-treatment activities in Kansas. p. 75.
- The introduction of the hot formaldehyde treatment for seed potatoes in Iowa. p. 6.
- Potato club work in Spokane County, Washington. p. 36.
- conference in Nebraska. p. 41.
- degeneration disease conference in Lincoln. Dec. 28, 1925. pp. 65, 85.
- disease survey trip in Oklahoma. p. 42.
- inspection trip in Virginia. p. 42.
- inspectors will study diseases. p. 43.
- seed inspections in Maryland. p. 65.
- ROSE, Dean H. Market pathology in the United States. p. 44.
- Seed-treatment, Activities in Kansas. D. R. Porter. p. 75.
- in Virginia. p. 83.
- Potato -- in North Carolina. G. W. Fant. p. 79.
- " " " Wyoming. Roy O. Westley. p. 81.
- " " , the introduction of the hot formaldehyde treatment in Iowa. Donald R. Porter. p. 6.
- Wheat --, the copper carbonate method in Oregon. E. R. Jackman. p. 79.
- SHERWOOD, E. C. Orchard spray-service work in West Virginia. p. 31.
- Tomatoes in Maryland. p. 65.
- Tours, in Ohio. p. 41.
- Field -- in Maryland. p. 40.
- in Michigan. p. 40.
- in New Jersey. p. 41.
- Kaw Valley potato --, Kansas. p. 39.
- Potato, Louisiana, p. 40.
- Minnesota, Red River Valley. p. 41.
- Wisconsin. p. 42.
- Southeastern Wyoming Farm --. p. 42.
- Washington, Word from --. George L. Zundel. p. 12.
- Wheat seed treating in Maryland. p. 64.
- in Virginia. p. 64.

